

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

PARKING TECHNOLOGY HOLDINGS
LLC,

Plaintiff,

- against -

PARK ASSIST, LLC,

Defendant.

ORDER

20 Civ. 3156 (PGG)

PAUL G. GARDEPHE, U.S.D.J.:

Plaintiff Parking Technology Holdings LLC alleges that Defendant Park Assist, LLC has infringed on one or more claims of U.S. Patent No. 7,893,848 (the “‘848 Patent” or the “Patent”), which is assigned to Plaintiff, and which concerns a method and system for managing vehicle parking in a parking area. (Cmplt. (Dkt. No. 1) ¶¶ 1, 5, 9-10)

There are two disputed claim terms at issue: (1) “processing the repeatedly captured sequence of images”; and (2) “processing the repeatedly captured sequence of images . . . resulting in segmentation of the respective images into vehicle and non-vehicle objects.” (See Joint Disputed Claim Terms Chart (Dkt. No. 48) at 1) The parties have presented their proposed constructions of these terms pursuant to Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996). (Id.; see also Pltf. Br. (Dkt. No. 49); Def. Br. (Dkt. No. 50); Pltf. Reply Br. (Dkt. No. 51)) On June 28, 2021, this Court conducted a claim construction hearing. (See June 28, 2021 Hearing Tr. (Dkt. No. 75)) For the reasons explained below, the Court concludes that neither term requires construction.

BACKGROUND

I. THE '848 PATENT

The '848 Patent is entitled “Apparatus and Method for Locating, Identifying, and Tracking Vehicles in a Parking Area,” and is comprised of sixteen claims and four figures. (Pltf. Br., Ex. 1 (Dkt No. 49-2) (the '848 Patent)) The '848 Patent was issued by the U.S. Patent and Trademark Office on February 22, 2011. (Id. at 45)¹ The '848 Patent’s Abstract states that the Patent is a

method for use in the management of vehicle parking in a vehicle parking area having a plurality of vehicle parking spaces, the method comprising determining the locations of vacant vehicle parking spaces; and displaying the locations of vacant vehicle parking spaces to people seeking to park vehicles.

(Id. at 57)

The '848 Patent explains that “[t]he invention relates to vehicle parking. In particular, it relates to apparatus and method for locating, identifying, and tracking vehicles in a car park.” (Id. at col. 1:15-17) According to the background information in the Patent, “[q]uite often, it is difficult for a driver to locate an empty parking space to park his/her vehicle in a huge car park, despite being informed that numerous parking spaces are available.” (Id. at col. 1:25-28) To address this problem, an

embodiment of the invention describes an apparatus and method for automatically providing the occupancy status of specific, individual car park lots 101 or spaces, and identifying each of the vehicles 103 that occupy them. The provision of occupancy status of the carpark lots 101 is achieved by processing one or more images of the car park lots 101 to provide information regarding the locations and numbers of empty and occupied car park lots 101, and guidance information to locate the car park lots 101.

¹ The page numbers referenced in this Order correspond to the page numbers designated by this District’s Electronic Case Files (“ECF”) system. Citations to the Markman hearing transcript correspond to the pagination generated by the court reporter. Citations to the '848 Patent correspond to the numbering provided in the patent itself.

(*Id.* at 4:13-22 (emphasis omitted)).

A. Disputed Claim Terms

The disputed claim terms are found in Claims 1, 4, and 12 of the '848 Patent.

(*Id.*) Claim 1 is shown below, with the disputed terms underlined:

1. A method for use in the management of vehicle parking in a vehicle parking area having a plurality of vehicle parking spaces, the method comprising:

determining the locations of vacant vehicle parking spaces; and

displaying the locations of vacant vehicle parking spaces to people seeking to park vehicles, wherein the step of determining the locations of vacant vehicle parking spaces comprises:

repeatedly capturing a sequence of images of pre-defined vehicle parking spaces;

processing the repeatedly captured sequence of images of the pre-defined vehicle parking spaces resulting in segmentation of the respective images into vehicle and non-vehicle objects; and

identifying one or more features in the respective processed captured images, wherein the features are representative of a vehicle's presence.

('848 Patent (Dkt. No. 49-2) at col. 12:26-43 (emphasis added); see also Joint Disputed Claim Terms Chart (Dkt. No. 48) at 1)

Claim 4 is shown below, with the disputed terms underlined:

4. A system for use in the management of vehicle parking in a vehicle parking area having a plurality of vehicle parking spaces, the system comprising:

one or more first detection units for determining the locations of vacant vehicle parking spaces; and

one or more display units for displaying the locations of vacant vehicle parking spaces wherein each first detection unit comprises:

one or more camera elements for repeatedly capturing a sequence of images of predefined vehicle parking spaces,

one or more image processing units for processing the repeatedly captured sequence of images obtained by the first detection unit resulting in segmentation of the respective images into vehicle and non-vehicle objects, and

one or more processors for identifying one or more features in the respective processed captured images, wherein each of the features are representative of a vehicle's presence.

('848 Patent (Dkt. No. 49-2) at col. 12:61-67, 13:1-14 (emphasis added); see also Joint Disputed Claim Terms Chart (Dkt. No. 48) at 1)

Claim 12 is shown below, with the disputed terms underlined:

12. A computer readable data storage medium having stored thereon computer code means for instructing a computer to execute a method for use in the management of vehicle parking in a vehicle parking area having a plurality of vehicle parking spaces, the method comprising:

determining the locations of vacant vehicle parking spaces; and

displaying the locations of vacant vehicle parking spaces, wherein the step of determining the locations of vacant vehicle parking spaces comprises:

repeatedly capturing a sequence of images of pre-defined vehicle parking spaces;

processing the repeatedly captured sequence of images of the pre-defined vehicle parking spaces resulting in segmentation of the respective images into vehicle and non-vehicle objects; and

identifying one or more features in the respective processed captured images, wherein the features are representative of a vehicle's presence.

('848 Patent (Dkt. No. 49-2) at col. 14:10-28 (emphasis added); see also Joint Disputed Claim Terms Chart (Dkt. No. 48) at 1)

II. PROCEDURAL HISTORY

The Complaint was filed on April 21, 2020. (Cmplt. (Dkt. No. 1)) On March 18, 2021, the parties filed a joint disputed claim terms chart. (Joint Disputed Claim Terms Chart (Dkt. No. 48)) Plaintiff filed its opening claim construction brief on April 12, 2021 (Pltf. Br. (Dkt. No. 49)), and Defendant filed its responsive claim construction brief on May 3, 2021.

(Def. Br. (Dkt. No. 50)) On May 10, 2021, Plaintiff filed a reply brief. (Pltf. Reply Br. (Dkt. No. 51)) On June 28, 2021, this Court held a Markman hearing. (See June 28, 2021 Hearing Tr. (Dkt. No. 75))

DISCUSSION

I. LEGAL STANDARDS

A. Claim Construction

Claim construction is a question of law to be determined by the Court. See Markman, 517 U.S. at 388-89. “It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude,” and “[t]here is a heavy presumption that claim terms are to be given their ordinary and customary meaning.” Aventis Pharm. Inc. v. Amino Chems. Ltd., 715 F.3d 1363, 1373 (Fed. Cir. 2013) (citation and quotation marks omitted).

In construing a patent claim, courts “should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history.” Am. Calcar, Inc. v. Am. Honda Motor Co., 651 F.3d 1318, 1336 (Fed. Cir. 2011) (citation and quotation marks omitted); see also Phillips v. AWH Corp., 415 F.3d 1303, 1313-14 (Fed. Cir. 2005) (same). “In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term.” Vitronics Corp. v. Conceptronic, Inc., 90 F. 3d 1576, 1583 (Fed. Cir. 1996)

Should the intrinsic evidence fail to resolve an ambiguity, a court may then turn to extrinsic evidence. Vitronics Corp., 90 F. 3d at 1582. “Extrinsic evidence is that evidence which is external to the patent and file history, such as expert testimony, inventor testimony, dictionaries, and technical treatises and articles.” Id. at 1584. Although extrinsic evidence may

be consulted where an ambiguity remains after consideration of the intrinsic evidence, extrinsic evidence is considered less reliable than intrinsic evidence. Phillips, 415 F.3d at 1318-19; see id. at 1319 (“[T]he court should keep in mind the flaws inherent in each type of evidence and assess that evidence accordingly.”).

A court’s claims construction analysis begins with “the words of the claims themselves . . . to define the scope of the patented invention.” Vitronics, 90 F.3d at 1582. “The words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history.” Thorner v. Sony Comput. Entm’t Am. LLC, 669 F.3d 1362, 1365 (Fed. Cir. 2012); see also Aylus Networks, Inc. v. Apple Inc., 856 F.3d 1353, 1358 (Fed. Cir. 2017) (explaining that the ordinary meaning of a claim term is its meaning “to the ordinary artisan after reading the entire patent.” (citation and quotation marks omitted)).

There are two exceptions to the above-stated rule: “1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” Thorner, 669 F.3d at 1365. For the lexicography exception to apply, “a patentee must clearly set forth a definition of the disputed claim term other than its plain and ordinary meaning” – i.e., “the patentee must clearly express an intent to redefine the term.” Id. (citations and quotation marks omitted).

“[S]imilarly exacting” is the “standard for disavowal of claim scope.” Id. at 1366; see GE Lighting Sols., LLC v. AgiLight, Inc., 750 F.3d 1304, 1309 (Fed. Cir. 2014) (“The standards for finding lexicography and disavowal are exacting.”). A “patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the

specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.” Thorner, 669 F.3d at 1366 (citation and quotation marks omitted).

It is not “enough that the only embodiments, or all of the embodiments, contain a particular limitation[, however]. [Courts] do not read limitations from the specification into claims; [courts] do not redefine words. Only the patentee can do that. To constitute disclaimer, there must be a clear and unmistakable disclaimer.” Id. at 1366-67; cf. Poly-Am., L.P. v. API Indus., Inc., 839 F.3d 1131, 1136 (Fed. Cir. 2016) (“an inventor may disavow claims lacking a particular feature when the specification distinguishes or disparages prior art based on the absence of that feature”).

“The construction of claims is simply a way of elaborating the normally terse claim language in order to understand and explain, but not to change, the scope of the claims.” Embrex, Inc., v. Serv. Eng’g Corp., 216 F.3d 1343, 1347 (Fed. Cir. 2000) (citation, quotation marks, and alteration marks omitted). “It is the claims that define the metes and bounds of the patentee’s invention. The patentee is free to choose a broad term and expect to obtain the full scope of its plain and ordinary meaning unless the patentee explicitly redefines the term or disavows its full scope.” Thorner, 669 F.3d at 1367 (citation omitted).

“If the claim term has a plain and ordinary meaning,” a court’s “inquiry ends.” Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc., 711 F.3d 1348, 1361 (Fed. Cir. 2013). However, should the claim term “not have an ordinary meaning, and its meaning is not clear from a plain reading of the claim,” courts then “turn to the remaining intrinsic evidence, including the written description,” to aid in the construction. Id. (citation and quotation marks omitted). “[C]laims must be read in view of the specification, of which they are a part. . . . [T]he specification is always highly relevant to the claim construction analysis. Usually, it is

dispositive; it is the single best guide to the meaning of a disputed term.” Phillips, 415 F.3d at 1315 (citation and quotation marks omitted).

While courts “us[e] the specification to interpret the meaning of a claim,” they must “avoid the danger of reading limitations from the specification into the claim” itself. Id. at 1323. “[A]lthough the specification often describes very specific embodiments of the invention, [the Federal Circuit has] repeatedly warned against confining the claims to those embodiments.” Id. It is, however, “[a] fundamental rule of claim construction . . . that terms . . . are construed with the meaning with which they are presented in the patent document. Thus claims must be construed so as to be consistent with the specification. . . .” Merck & Co., Inc. v. Teva Pharmas. USA, Inc., 347 F.3d 1367, 1370 (Fed. Cir. 2003) (citations omitted).

The prosecution history may “inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” Phillips, 415 F.3d at 1317. Prosecution history “often lacks the clarity of the specification[, however,] and thus is less useful for claim construction purposes.” Id.

B. Indefiniteness

“A claim is invalid for indefiniteness if its language, read in light of the specification and prosecution history, ‘fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention.’” HZNP Medicines LLC v. Actavis Labs. UT, Inc., 940 F.3d 680, 688 (Fed. Cir. 2019) (quoting Nautilus, Inc. v. Biosig Instruments, Inc., 572 U.S. 898, 901 (2014)). “The reasonable certainty standard established in Nautilus reflects a delicate balance between the inherent limitations of language and providing clear notice of what is claimed.” Guangdong Alison Hi-Tech Co. v. Int’l Trade Comm’n, 936 F.3d 1353, 1359 (Fed.

Cir. 2019) (citation and quotation marks omitted). “[A] patentee need not define his invention with mathematical precision in order to comply with the definiteness requirement.” Id. (citation and quotation marks omitted). “At bottom, the indefiniteness test ‘mandates clarity, while recognizing that absolute precision is unattainable.’” Focus Prod. Grp. Int’l, LLC v. Kartri Sales Co., Inc., 15 Civ. 10154 (PAE), 2018 WL 3773986, at *7 (S.D.N.Y. Aug. 9, 2018) (quoting One-E-Way, Inc. v. Int’l Trade Comm’n, 859 F.3d 1059, 1063 (Fed. Cir. 2017)).

The party asserting indefiniteness has “the burden of proving indefiniteness by clear and convincing evidence.” BASF Corp. v. Johnson Matthey Inc., 875 F.3d 1360, 1365 (Fed. Cir. 2017). It is permissible to decide indefiniteness during claim construction. See, e.g., Ave. Innovations, Inc. v. E. Mishan & Sons Inc., 310 F. Supp. 3d 457, 462 (S.D.N.Y. 2018) (“Indefiniteness is a matter of claim construction, and the same principles that govern claim construction are applicable to determining whether allegedly indefinite claim language is subject to construction.” (citation and quotation marks omitted)).

II. ANALYSIS

A. “Processing the Repeatedly Captured Sequence of Images”

The parties dispute the meaning of the term “processing the repeatedly captured sequence of images” as used in Claims 1, 4, and 12 of the ’848 Patent. (See Joint Disputed Claim Terms Chart (Dkt. No. 48) at 1)

Plaintiff contends that no construction of this term is necessary because this “simple seven-word phrase” is understandable by both a lay jury and a person of ordinary skill in the art. (Pltf. Br. (Dkt. No. 49) at 11 (citing de la Iglesia Decl. (Dkt. No. 49-10) ¶¶ 31-35)) According to Plaintiff, (1) the claim term is readily understandable and not indefinite (id. at 12-

14); and (2) Defendant's alternative proposed construction is not derived from intrinsic or extrinsic evidence. (Id. at 14-16)

Defendant contends that the term is indefinite. (Def. Br. (Dkt. No. 50) at 20) In arguing that the term is indefinite, Defendant asserts that the word "sequence" – as used in "repeatedly captured sequence of images" – "could have many meanings to a [person of ordinary skill in the art]," including "whether the claimed 'sequence of images' means a time sequence of images within a parking space (1, 2, 3 seconds), a physical sequence of images of adjacent parking spaces (a,b,c), pan, tilt, zoom (PTZ) sequence (i, ii, iii), or some other sequence variation." (Id. at 12)

In the alternative, Defendant contends that the term should be construed as "processing a sequence of images of a parking space together in a single processing event." (Id. at 20) Defendant's proposed construction thus eliminates the "repeatedly captured" language and adds that the "processing" shall occur "in a single . . . event" in a single "parking space." (Id.) In support of this construction, Defendant cites the claim language and specification, arguing that both refer to a sequence of images being taken of each "cell" – which is described in the '848 Patent as a single parking space ('848 Patent (Dkt. No. 49-2) col. 2:27-29 ("Each camera element may be arranged such that different cells of an image from the camera element is associated with one vehicle parking space") – such that the sequence should be a time sequence as opposed to a sequence of multiple parking spaces. (Def. Br. (Dkt. No. 50) at 20-21)

As an initial matter, it is not clear why Defendant contends that "sequence" – as used in the first disputed term – is indefinite, but raises no challenge to the use of "sequence" in the preceding term in Claim 1. (Compare '848 Patent (Dkt. No. 49-2) col. 12:35-36 ("repeatedly capturing a sequence of images of pre-defined vehicle parking spaces"), with id. at col. 12:37-38

(“processing the repeatedly captured sequence of images of the pre-defined vehicle parking spaces”); see also de la Iglesia Decl. (Dkt. No. 49-10) ¶ 33 (noting that Defendant does not contend that the preceding claim element “repeatedly capturing a sequence of images” is indefinite or requires construction)

In any event, as to the use of “sequence” in the first disputed term, Defendant argues that there are multiple ways in which images may be sequenced, such that a person of ordinary skill in the art would not know what type of sequencing to employ, thus rendering this first disputed term indefinite. (Def. Br. (Dkt. No. 50) at 12-14)

As an initial matter, the scope of the invention appears readily discernable from the face of the patent. Per Claims 1, 4, and 12, images of parking spots are collected (captured) – in some form (the sequencing) – and then organized (processed) so as to reveal empty parking spaces.

Focusing on Claim 1, the Court understands that (1) the claimed invention is a method to be used for managing vehicle parking in a vehicle parking area in which there are multiple parking spaces; (2) the method requires (a) determining open parking spaces, and (b) displaying the empty parking spaces to people seeking to park their vehicles. ('848 Patent (Dkt. No. 49-2) col. 12:25-34) The method for determining the location of vacant parking spaces is comprised of (1) “repeatedly capturing a sequence of images of pre-defined vehicle parking spaces”; (2) “processing” those captured images; (3) “segment[ing]” the “images into vehicle and non-vehicle objects”; and (4) identifying features in the processed captured images so as to indicate whether a vehicle is present or the space is empty. (Id. at col. 12:35-44) In layman’s terms, the invention seeks to both determine and reveal empty parking spaces.

Claim 4 requires a system that has “one or more first detection units for determining the locations of vacant vehicle parking spaces,” and “one or more display units for displaying the locations of vacant vehicle parking spaces,” such that a detection unit comprises “one or more camera elements for repeatedly capturing a sequence of images” and “one or more image processing units for processing the repeatedly captured sequence of images obtained by the first detection unit resulting in segmentation of the respective images into vehicle and non-vehicle objects.” (Id. at col. 12:64-67, 13:1-3, 5-8) As in Claim 1, the system referenced in Claim 4 requires “one or more processors for identifying one or more features in the respective processed captured images, wherein each of the features are representative of a vehicle's presence.” (Id. at col. 13:10-13) In layman's terms, cameras are used to repeatedly capture a sequence of images of the parking spaces; those images are organized into those showing vehicle and non-vehicle objects; and one or more processors identify features in the processed captured images so as to indicate whether a vehicle is present or the space is empty.

Claim 12 requires “[a] computer readable data storage medium” capable of “instructing a computer to execute [the] method” described in Claims 1 and 12. (Id. at col. 14:10-28)

In sum, the '848 Patent describes an invention that seeks to display empty vehicle parking spaces to those seeking an empty parking space, and it accomplishes this task by monitoring parking spaces, utilizing cameras that repeatedly capture images of parking spaces, and conveying information about empty parking spaces to people seeking empty parking spaces. The scope of the invention appears clear from the claims.

The specification similarly explains that the invention is designed to determine whether parking spaces are occupied by vehicles and to convey information regarding the occupancy status of parking spaces:

the invention describes an apparatus and method for automatically providing the occupancy status of specific, individual car park lots 101 or spaces, and identifying each of the vehicles 103 that occupy them. The provision of occupancy status of the carpark lots 101 is achieved by processing one or more images of the car park lots 101 to provide information regarding the locations and numbers of empty and occupied car park lots 101, and guidance information to locate the car park lots 101. The identification of vehicles 103 is achieved by processing one or more images of the vehicles 103, which may include identifying the license plate (*i.e.*, a series of number and/or characters) of vehicles 103, providing the accurate location (*e.g.*, in which car park lot and where is that lot within the entire car park) of vehicles 103 by identifying by one or more of their features (*e.g.* colour, model, brand, etc of a car), and providing guidance information to locate the vehicles 103. The apparatus and method can be extended to provide vehicle-related information, such as parking lot booking/reservation, parking enforcement, car park surveillance, vehicle look-up, traffic flow analysis, and congestion regulation.

(’848 Patent (Dkt. No. 49-2) at col. 4:13-34 (emphasis omitted))

The specification likewise explains that there is a “camera network” that “monitor[s] continuously some or all of the parking lots 101 and/or vehicle lanes for the presence/absence and movement of objects, people and vehicles 103.” (Id. at col. 4:35-40 (emphasis omitted)) The specification also discusses how the “images acquired by the camera sensor network . . . are transmitted . . . to a network of Image Processing and Camera Control Units (IPCCUs) . . . [and] the IPCCUs 115 process the images that are channeled to them using built-in advanced adaptive self-learning image-processing algorithms that are stored in the memory of the IPCCU 115.” (Id. at col. 4:41-50 (emphasis omitted))

Plaintiff’s expert, Erik de la Iglesia, states that the first disputed claim term “would be readily understandable to a [person of ordinary skill in the art] and even members of the general public,” such that construction is unnecessary. (See de la Iglesia Decl. (Dkt. No. 49-

10) ¶ 31; see also id. ¶ 33 (noting that Defendant does not contend that the preceding claim element “repeatedly capturing a sequence of images” is indefinite or requires construction; asserting “processing” and “repeatedly” are words that are common and easily understood and do not require construction); id. ¶ 34 (asserting that claim terms are “especially clear,” indicating “what is being processed (‘the repeatedly captured sequence of images’) and the result of the processing (‘resulting in segmentation of the respective images into vehicle and non-vehicle objects’),” as well as providing – in Claim 4 – the “structure for performing the claimed processing”)).

As noted above, Defendant contends that “[s]equence could have many meanings to a [person of ordinary skill in the art] and there is no disclosure here to determine the meaning and scope of the term as used in these claims.” (Def. Br. (Dkt. No. 50) at 12) According to Defendant, the first disputed term is indefinite because there are multiple ways to sequence images, and a person of ordinary skill in the art would not know from the disputed term what type of “sequence” is envisioned, whether physical sequence, time sequence, or otherwise. (Id.) “[B]readth is not indefiniteness[, however].” BASF Corp., 875 F.3d at 1367. Acknowledging that there are multiple ways to sequence images, the fact that the disputed term encompasses multiple sequencing methods does not render the term indefinite, especially when the scope of the claimed invention is definite. Indeed, a “patentee is free to choose a broad term and expect to obtain the full scope of its plain and ordinary meaning unless the patentee explicitly redefines the term or disavows its full scope.” Thorner, 669 F.3d at 1367 (citation omitted).

The Court concludes that construction of the first disputed term is not necessary, as the term readily understandable to a person of ordinary skill in the art and, indeed, by a layman. Power Integrations, 711 F.3d at 1361; see also Summit 6, LLC v. Samsung Elecs. Co.,

802 F.3d 1283, 1291 (Fed. Cir. 2015) (“Because the plain and ordinary meaning of the disputed claim language is clear, the district court did not err by declining to construe the claim term.”); ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc., 694 F.3d 1312, 1326 (Fed. Cir. 2012) (“The district court did not err in concluding that these terms have plain meanings that do not require additional construction.”).²

B. “Processing the Repeatedly Captured Sequence of Images . . . Resulting in Segmentation of the Respective Images into Vehicle and Non-Vehicle Objects”

The parties dispute the meaning of the term “processing the repeatedly captured sequence of images . . . resulting in segmentation of the respective images into vehicle and non-vehicle objects.” This term appears in Claims 1, 4, and 12 of the ’848 Patent. (See Joint Disputed Claim Terms Chart (Dkt. No. 48) at 1)

According to Plaintiff, no construction of this term is necessary, because its scope and meaning are readily understandable. (Pltf. Br. (Dkt. No. 49) at 16 (“The claims and specification indicate that the invention identifies vacant parking spaces by capturing images of spaces and processing them to determine whether the associated spaces are likely to contain vehicles, which results in segmentation of the images into vehicle and non-vehicle objects.”))

Defendant contends that the term is indefinite, or, in the alternative, should be construed as “separating or dividing the images into vehicle and non-vehicle objects, without the use of an earlier clean image devoid of vehicles.” (Def. Br. (Dkt. No. 50) at 22)

² Although the Court finds the first disputed term to be definite, requiring no construction, the Court also notes that Defendant has not offered “clear and convincing evidence” that a person of ordinary skill in the art – aware of the scope of the invention – would not employ a sequencing methodology that would produce the invention’s desired result. See BASF Corp., 875 F.3d at 1365.

As to indefiniteness, Defendant argues that the '848 Patent "(1) only discloses a black box of purported 'proprietary advanced . . . algorithms' and 'advanced software engineering' that somehow 'deduce the status of the car park,' and (2) a [person of ordinary skill in the art] could not select and determine with reasonable certainty among known methods which require different criteria and thresholds and produce differing results." (Def. Br. (Dkt. No. 50) at 14 (quoting '848 Patent (Dkt. No. 49-2) col. 8:52, 9:12, 4:50-51)) In sum, Defendant contends that there are multiple ways to segment, and that the disputed term does not permit a person of ordinary skill in the art to deduce which method of segmentation to employ. (*Id.* at 15; see also id. at 16 (arguing that there are multiple methods of segmentation, each of which "produce different results and require selection of criteria and thresholds for deciding an object has been identified in an image, and separate criteria and thresholds for deciding what type of object has been separated from an image")); *id.* at 17 ("Because the '848 patent is silent as to what methods or criteria might be used in the 'processing resulting in segmentation,' the claim boundaries are unclear because the [person of ordinary skill in the art] has multiple choices, and the different methods and criteria lead to vastly different results."))

As noted above, Defendant argues, in the alternative, that this disputed term should be construed as "separating or dividing the images into vehicle and non-vehicle objects, without the use of an earlier clean image devoid of vehicles." (Def. Br. (Dkt. No. 50) at 22) In discussing its alternative construction, Defendant contends that the critical issues regarding this disputed term are "(1) does segmentation of the sequences of images separate or divide them into vehicle and non-vehicle objects; and (2) is the processing done without use of an earlier clean image as applicant argued in overcoming prior art." (*Id.*)

According to Defendant, “segmentation” – for purposes of the disputed term – means “separating” vehicle and non-vehicle objects. (Id.) But the disputed term is ambiguous as to “whether ‘processing’ is something in addition to ‘segmentation.’” (Id. at 23) Defendant suggests that this alleged ambiguity be resolved by construing “segmentation” to mean “separating.” (Id.) Defendant further argues that the ’848 Patent applicant defined the “processing” step in such a way as to “disclaim[] the use of ‘clean images devoid of vehicles’ to gain allowance of the claims at issue.” (Id.; see id. at 24-25 (contending that the ’848 Patent applicant made the disclaimer in order to distinguish the ’848 Patent from the Japanese Sanyo patent, an earlier patent))

The Court begins again with the words of the disputed claim, read in the context of the specification and prosecution history. Claim 1 provides that the invention is “[a] method for use in the management of vehicle parking in a vehicle parking area having a plurality of vehicle parking spaces,” and that the “method” comprises, in part, “processing the repeatedly captured sequence of images of the pre-defined vehicle parking spaces” – the first disputed claim term, which this Court has found requires no construction – “resulting in segmentation of the respective images into vehicle and non-vehicle objects.” (’848 Patent (Dkt. No. 49-2) at col. 12:25-28, 37-40)

Claim 4 provides that the subject system comprises, inter alia, “one or more first detection units for determining the locations of vacant vehicle parking spaces,” including a “first detection unit comprise[d] [of],” inter alia, “one or more image processing units for processing the repeatedly captured sequence of images obtained by the first detection unit resulting in segmentation of the respective images into vehicle and non-vehicle objects.” (Id. at col. 12:61-67; 13:1-8)

Claim 12 requires “[a] computer readable data storage medium” capable of “instructing a computer to execute [the] method” described in Claims 1 and 12. (Id. at col. 14:10-28)

The referenced “method” is comprised of, inter alia, “processing the repeatedly captured sequence of images of the pre-defined vehicle parking spaces resulting in segmentation of the respective images into vehicle and non-vehicle objects.” (Id. at col. 14:10-25)

The scope of the terms appears readily discernable. The invention seeks to provide an apparatus and method for providing the occupancy status of parking spaces, and does so by capturing images of parking spaces and segmenting those images into two categories: images with vehicle objects and images with non-vehicle objects.

The specification supports this understanding. For example, the “Image Processing and Camera Control Units (IPCCUs)” discussed above “process the images that are channeled to them using built-in advanced adaptive self-learning image-processing algorithms that are stored in the memory of the IPCCU,” and the “algorithms deduce the status of the car park.” (Id. at col. 4:43-53)³ “The captured cell images are sent for processing at a respective IPCCU . . . [and at] the IPCCUs 204, images received at step 205 are processed and segmented into vehicle and non-vehicle objects.” (Id. at col. 5:18-23) Step 205 in Figure 2, provides: “Process and segment the images to separate vehicle from non-vehicle objects.” (Id. at Fig. 2)

As to the algorithms used to “deduce the status of the car park” – i.e., to determine which parking spaces are occupied or unoccupied – Plaintiff’s expert, Erik de la

³ According to the specification, these algorithms “perform real-time identification/classification/location of vehicles 325, and real-time detection/location of vacant/occupied parking lots 335.” (’848 Patent (Dkt. No. 49-2) at col. 8:51-55 (emphasis omitted))

Igelsia, explains that “[t]he claimed invention is not a particular new algorithm,” and that “the claims are not limited to a specific individual algorithm for accomplishing this.” (de la Iglesia Decl. (Dkt. No. 49-10) ¶ 43) According to de la Iglesia, “[a] [person of ordinary skill in the art] seeking to implement the claimed invention would have known to use one or more image processing algorithms that would provide sufficient performance for the desired application. . . . [A] [person of ordinary skill in the art] would have known to use one or more algorithms that could determine whether a vehicle is present in a parking space based upon a current or recent captured image of the space, with a reasonable degree of accuracy.” (Id. ¶ 46)

de la Iglesia further notes that while the

specification does not use the particular word “segmentation,” [] a POSITA would be familiar with this terminology and could further consult the specification, which uses similar terms to describe exemplary embodiments. For example, the specification includes the word “segment” in the exemplary illustration of Figure 2 and uses the word “segmented” in describing that portion of the figure. . . .

(Id. ¶ 47)

During the Markman hearing, defense counsel agreed that the underlying algorithms need not be revealed. (See June 28, 2021 Hearing Tr. (Dkt. No. 75) at 26-27) But Defendant contended at the hearing (id.) – and contends in briefing – that the disputed term is indefinite because there are multiple ways to segment, and the disputed term does not permit a person of ordinary skill in the art to deduce which method of segmentation to employ. (Def. Br. (Dkt. No. 50) at 14-16)

However, the intrinsic evidence, as well as the extrinsic evidence – de la Iglesia’s declaration – indicate that the invention is intended to organize captured images into vehicle and non-vehicle object categories. And while Defendant complains that the ’848 Patent does not provide guidance on how to segment – i.e., what method of segmentation should occur (see Def.

Br. (Dkt. No. 50) at 14-15), such precision is not necessary. Defendant's expert concedes that many methods of segmentation would be known to a person of ordinary skill in the art, such that the alleged issue is choosing which method of segmentation to employ. (Papanikolopoulos Decl. (Dkt. No. 50-9) ¶ 44) The '848 Patent's scope is clear, however: the objective is to distinguish images displaying non-vehicle objects from those displaying vehicles. (See generally '848 Patent (Dkt. No. 49-2)) And even if a person of ordinary skill in the art could employ various forms of segmentation to achieve that objective, that does not render the term indefinite, especially when the claim language and specification clearly delineate the scope. BASF Corp., 875 F.3d at 1367.⁴

⁴ Teva Pharmaceuticals USA, Inc. v. Sandoz, Inc., 789 F.3d 1335 (Fed. Cir. 2015) – cited by Defendant (Def. Br. (Dkt. No. 50) at 18) – is not to the contrary. In Teva, the claim at issue recited a method for manufacturing “copolymer-1,” a compound of “four different amino acids . . . combined in a certain ratio to make a polypeptide product.” Teva, 789 F.3d at 1338. The claim provided that that manufacturing method would result in a product that had “a molecular weight of about 5 to 9 kilodaltons.” Id. (citation and quotation marks omitted) (emphasis omitted). The court found that

[a] sample of polymeric material like copolymer-1 typically consists of a mixture of individual polymer molecules that have varying molecular weights. There are three different measures of molecular weight relevant to this appeal: peak average molecular weight (M_p), number average molecular weight (M_n), and weight average molecular weight (M_w). Each measure is calculated in a different manner. The claim does not specify which measure to use and in a typical polymer sample, M_p , M_n , and M_w have different values.

Id. The Federal Circuit concluded that the claim term “molecular weight” was indefinite because (1) the claim “recite[d] ‘molecular weight’ without specifying the meaning of that term”; and (2) it was undisputed that “‘molecular weight’ could refer to” three different measurements of weight, which could be calculated in different weight and yield different results. Id. at 1341.

In sum, the claim in Teva required a method that would yield a specific “molecular weight,” but the claim did not explain how “molecular weight” would be determined. Because “molecular weight” could be calculated in three different ways – yielding three different results – the Federal Circuit concluded that the term “molecular weight” was indefinite. Id. at 1344-45.

As to Defendant's alternative construction, it is not persuasive. Defendant proposes that the term be construed as: "separating or dividing the images into vehicle and non-vehicle and objects, without the use of an earlier clean image devoid of vehicles." (Joint Disputed Claim Terms Chart (Dkt. No. 48))

As to the "separating or dividing" language, this Court has already concluded that "resulting in segmentation" is readily understandable. In such circumstances, it is not the role of this Court to redefine the term or deny its full scope. Thorner, 669 F.3d at 1367. Stated another way, Defendant has provided no basis for this Court to insert words into a term it has found to be definite. Id. at 1365.

In arguing that the term at issue should be construed as including the language, "without the use of an earlier clean image devoid of vehicles," Defendant contends that Plaintiff "disclaimed the use of 'clean images devoid of vehicles' to gain allowance of the claims at issue [before the patent examiner]." (Def. Br. (Dkt. No. 50) at 23)

On December 31, 2009, the '848 Patent examiner provided an "Office communication" to the '848 Patent applicant in which the examiner partially rejected certain claims "as being anticipated by Slemmer et al [U.S. 7,026,954]," and "as being unpatentable over Sefton [U.S. 2003/0133594] in view of Slemmer" – i.e., due to prior art. (Pltf. Br., Ex. 4 (Dkt. No. 49-5) at 23-33 (emphasis omitted))

The facts of the instant case are not comparable. Unlike in Teva, the claim at issue does not turn on a measurement of weight or, indeed, any measurement. Instead, the language at issue requires "segmentation . . . of images into vehicle and non-vehicle objects." The method of segmentation is not specified, but that does not render the language indefinite, because the claim language and specification clearly delineate the scope of the disputed term. As discussed earlier, "breadth is not indefiniteness." BASF Corp., 875 F.3d at 1367.

On June 1, 2010, the '848 Patent applicant responded to the examiner's December 31, 2009 "Office communication," providing amendments and responses. (*Id.* at 10) The applicant's response concerning the issue raised by Defendant is found under the header "The obviousness rejections of claims 2, 3, 10-20, 22, and 23 over Sefton in view of Slemmer," and reads as follows:

Embodiments of the present invention defined, for example, by amended independent claim 1 provide a number of advantageous effects. For example, embodiments of the present invention do not need an earlier "clean" image that is devoid of vehicles or an "earlier" image of an authorized vehicle, which in turn would require an earlier "clean" image of a parking lot devoid of the vehicles. To search for a vehicle, embodiments of the present invention do not require an earlier captured image of the vehicle. Instead, by utilizing segmentation of the captured images into vehicle and non-vehicle objects, as claimed e.g. in amended independent claim 1, the vehicle objects, for example, themselves can be separately processed for searching, identifying etc.

(*Id.* at 20-21 (emphasis added); see also Def. Br. (Dkt. No. 50) at 23-24)

According to Defendant, in this response, the '848 Patent applicant (1) disclaimed the use of an earlier clean image that is devoid of vehicles; and (2) did so in order to gain allowance, citing the "associated 'advantages' with its amendments over the prior art." (Def. Br. (Dkt. No. 50) at 24 (citation omitted))

Defendant contends that the prior art that the '848 Patent applicant was seeking to distinguish is the Japanese Sanyo Patent. (*Id.*) According to Defendant, "many years earlier" the '848 Patent applicant's claims had been rejected "in a related Patent Cooperation Treaty . . . application," such that the applicant had to amend its claims at that time in a fashion similar to that adopted in connection with the '848 Patent application process. (*Id.* at 24-25)

In order to prevail on its argument that the '848 Patent applicant disavowed the use of an earlier clean image, Defendant must "overcome a heavy presumption that claim terms carry their full ordinary and customary meaning," and demonstrate that "the patentee expressly

relinquished claim scope.” Epistar Corp. v. Int’l Trade Comm’n, 566 F.3d 1321, 1334 (Fed. Cir. 2009). While “prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be,” Phillips, 415 F.3d at 1317, there must be a “clear and unmistakable disavowal during prosecution” to “overcome[] the heavy presumption that claim terms carry their full ordinary and customary meaning.” Plantronics, Inc. v. Aliph, Inc., 724 F.3d 1343, 1350 (Fed. Cir. 2013) (citation and quotation marks omitted). “[W]hen the patentee unequivocally and unambiguously disavows a certain meaning to obtain a patent, the doctrine of prosecution history disclaimer narrows the meaning of the claim consistent with the scope of the claim surrendered.” Id.

Here, Defendant’s argument that the ‘848 Patent applicant – in the June 1, 2010 response to the patent examiner – disclaimed the use of an earlier clean image that is devoid of vehicles, is not persuasive. As an initial matter, the ’848 Patent applicant does not clearly and unambiguously disclaim the use of an earlier clean image. The applicant instead states that “embodiments of the present invention do not need an earlier ‘clean’ image that is devoid of vehicles,” and that “[t]o search for a vehicle, embodiments of the present invention do not require an earlier captured image of the vehicle.” (Pltf. Br., Ex. 4 (Dkt. No. 49-5) at 21 (emphasis added)) The phrases “do not need” and “do not require” are not the same as “without the use of” – the latter being the phrase Defendant proposes in its alternative construction. (See Joint Disputed Claim Terms Chart (Dkt. No. 48)) The phrases “do not need” and “do not require” connote that an earlier clean image could be used but is not necessary. Defendant’s proposed language – “without the use of” – is thus more restrictive than the language used by ’848 Patent applicant in the June 1, 2010 response.

Likewise unpersuasive is Defendant's argument that the '848 Patent applicant disclaimed "earlier clean image that is devoid of vehicles" as part of an effort to distinguish prior art in the form of the Japanese Sanyo Patent. It is evident from the patent examiner's December 31, 2009 "Office communication" that during the prosecution of the '848 Patent, the examiner was concerned with Slemmer and Sefton, and not with Sanyo. (See, e.g., Pltf. Br., Ex. 4 (Dkt. No. 49-5) at 21, 23-33) As Plaintiff points out, Sanyo was only "identified to the '848 Patent examiner on Sept[ember] 8, 2010 after it was cited to the applicant in a June 29, 2010 communication from the Japanese Patent Office" – i.e., after the applicant's June 1, 2010 response to the examiner. (Pltf. Reply Br. (Dkt. No. 51) at 13 (citing Def. Br., Ex. 4 (Dkt. No. 50-5) at 102-103, 122)) Given these circumstances, Defendant has not demonstrated that the '848 Patent applicant's June 1, 2010 response to the patent examiner was a "clear and unmistakable" disavowal made to overcome the Sanyo Patent – a patent that the examiner had not cited. See Plantronics, 724 F.3d at 1350-51.

The Court concludes that the June 1, 2010 response by the '848 Patent applicant does not constitute an unequivocal and unambiguous disavowal. Accordingly, the Court will not adopt Defendant's proposed alternative claim construction.

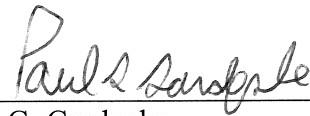
CONCLUSION

For the reasons stated above, this Court declines to construe the disputed terms of the '848 Patent.

Any party wishing to file a dispositive motion will file a pre-motion letter in accordance with this Court's Individual Rules by **May 10, 2024**. Responsive letters are due by **May 17, 2024**.

Dated: New York, New York
April 30, 2024

SO ORDERED.



Paul G. Gardephe
United States District Judge